

Delivering World-Class Telephony on a Distributed, IP-Based Architecture

A functional view of Succession Communication Server for Enterprise 1000

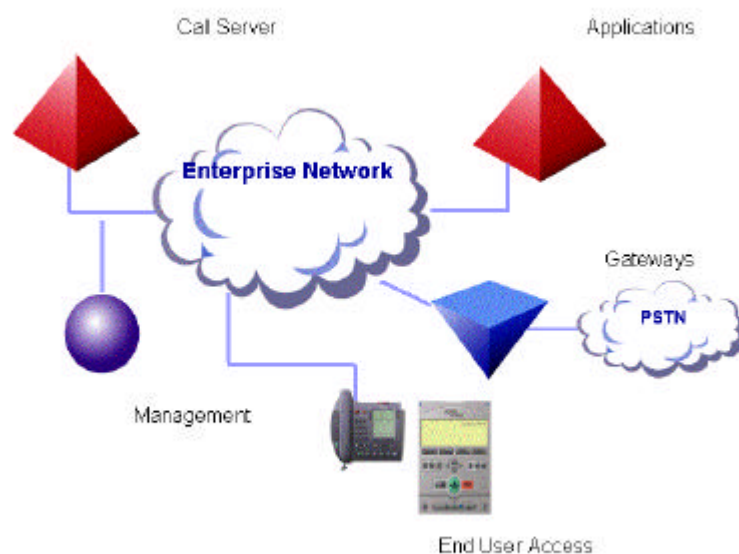
Introduction

There is tremendous change underway in the communications industry—convergence, or the integration of voice into the data communications network. Major market forces such as the explosion of the Internet and pervasiveness of the global economy are driving change while enterprises seek the benefits of convergence for a competitive edge:

- Revenue derived from eBusiness and Internet-based call centers
- Enhanced productivity from distributed workforce services, mobility, and unified messaging
- Operational simplicity and cost-savings from consolidation of networks and unified management.

On the technology front, many user and application interfaces are evolving to leverage the Internet Protocol (IP) -based browser, and IP addresses, names or URLs.

Among packet switching technologies, IP is ubiquitous throughout LANs, campus networks, enterprise intranets and the Internet. All this makes IP uniquely suited to be the protocol for unifying telephony with data. In



this new architecture IP-based telephones, applications and media gateways will be distributed around an IP network, supported by a call server that provides the call- and connection-management services.

Components of a Succession IP Telephony Communications System

The Nortel Networks Succession* Communication Server for Enterprise portfolio includes IP telephony extensions as well as distributed IP communications system—a distributed IP PBX utilizing packet switching. It delivers the full complement of Nortel Networks high-value, global, mission-critical voice applications. The fundamental characteristics of Succession Communication Server for Enterprise (CSE) 1000 are that call and connection-management is distributed, switching is packet-based, cabling is simplified, management of voice and data is unified, and user access is flexible in terms of type of device and location. These contribute to more efficient use of network infrastructure and promise simpler installation and maintenance.

The architectural attributes of Succession CSE 1000 include distributed, scalable network elements based on global standards and interconnected with IP as the common thread. These attributes will enable new productivity enhancing applications and capabilities based on consistent interfaces and protocols such as:

- Flexible terminal and system element deployment network wide (LAN and WAN)
- Easier management with fewer call processors and application servers
- Integration with current and evolving telephony feature sets, protocols and APIs
- Simple collapsed voice/data network infrastructure and topology

Succession CSE 1000 delivers the rich complement of application

intelligence and variety of user interfaces that customers expect from Nortel Networks. eBusiness solutions are readily enabled directly to customers, suppliers and dealers, thus supporting new process methodologies and business competitiveness.

Nortel Networks' Succession CSE 1000 provides flexible, modular architecture and packaging options that allow for customer implementation immediately or in a phased-migration approach. **Based on Nortel Networks' High Performance Network Architecture**, this IP-distributed solution offers the benefits of location flexibility for system elements, along with wiring control, and simplification of space planning, system management and databases. A unique attribute of Succession CSE 1000 is that it can bridge the transition between the circuit-switched PBX and the IP network—or operate within a fully IP network. This permits customers to plan implementation at an affordable pace, when they need it. Succession CSE 1000 is the path of an architectural evolution to decouple the key components of the enterprise communications system: call processing, switching, and line and trunk interfaces. Open and standard elements such as Windows NT application and management servers and TAPI and H.323 interfaces are a major part of the transformation underway. A significant step in delivery of Succession CSE 1000 is replacement of circuit switching hardware with IP switching.

The key components of Nortel Networks Succession CSE 1000 are PSTN and analog station media gateways, a choice of user interfaces, call connection services, management, directories and applications. While these elements

have been designed to operate together, it is not necessary to install them all to realize major benefits. Each of the key components will be described in the following sections.

Media Gateways

Media Gateways are based upon telephony grade technology and serve several purposes:

- Single database and single point of management benefits inherent in telephony remotes
- Wired/wireless telephone interfaces
- Global Public Switched Telephone Network interfaces,
- Conference/tone services, and gateway functionality.

Media gateways can be locally distributed LAN modules or WAN distributed remotes (next release). Whether centralized or dispersed across the LAN or WAN, they are connected to each other and other key elements using IP interfaces. They provide secure controlled access to the system management interface. Data rack-mount packaging is standard.

Internet Telephones

Choice of User Interfaces

Conducting real-time interpersonal communications in an IP telephony world requires a client device with an intuitive user interface: a telephone. User requirements for features and functionality will continue to vary widely, and Succession CSE 1000 supports the full range of desktop devices to meet those needs: from fully featured digital telephones to Internet Telephones, USB phones and headsets, wireless telephones and software clients running on a PC.

These client devices can be used interchangeably on Succession CSE

1000. i2004 Internet Telephones are directly connected to the LAN. Users are provided the features and services they require and the enterprise. Business capitalizes on the economies of a simplified wiring system within the enterprise since all desktop devices are clients on the voice/data network.

Communication Server

While commercially available Operating Systems (OS) software such as UNIX and Windows NT are making significant improvements in reliability, Nortel Networks is working with its strategic partners, such as Microsoft, Intel and Hewlett-Packard, among others, to ensure these commercial OS's are truly capable of supporting mission critical voice systems. The Succession CSE 1000 is based upon proven telephony grade technology, and offers the expected values of ultra-reliability and redundancy. It supports non-Nortel Networks developed applications through its industry standard Telephony Applications Program Interface (TAPI) and trunk based interfaces using Q.Sig and ISDN protocols. (The TAPI interface is a client-server-based model that has been embraced by software developers who build telephony-enabled applications.)

Succession CSE 1000 voice services are handled by Communication Servers that can be distributed anywhere within the IP network. Each Communication Server is scalable and can support from small to very large configurations, up to 640 users per system in the first release. While the network infrastructure is open – vendor independent – the combination of Succession CSE 1000 and Layer 3 switches such as Passport 8600* will offer best-in-class solutions in

unified data and voice processing and switching.

The Communication Server provides the call and connection-management services in an IP network and supports distributed lines, trunks, management and user interfaces. Features include Conference, Call Forward, Ring Again, Multiple Appearance Directory Numbers (MADNs), Call Detail Recording, and hundreds more user, management, networking and routing features and applications.

Management

The “Telephony Manager” management system for Succession Communication Server for Enterprise 1000 is a part of Nortel Networks Enterprise network management solutions. This solution interfaces with Optivity* Network management and can be integrated into other common solutions such as HP Openview. Using the standard MIB based approach; network management responsibilities are integrated in a single platform, eliminating the need for maintaining separate network management monitoring stations. Alarm management for Succession CSE 1000 is designed using the industry standard SNMP (Simple Network Management Protocol). This is a standardized communication protocol and method of information structuring based on a device MIB (Management Information Base). Optivity NMS, with the Telephony Manager, provides unified alarm monitoring and Web access not only to IP based voice systems but also to existing voice systems. Additional Telephony Manager application modules provide telephone Move, Add and Change (MAC) management, Call Accounting, Call Tracking, Traffic Analysis, System Maintenance,

Alarm Management, and Network dialplan management. The web-based interface offers single point of entry and centralized management along with multi-user capability. Customizable reporting, database import/export, scheduled tasks and Disaster Recovery tools all save time and facilities costs, and simplify management of a complex network.

Directories

Directories have always been an intrinsic component of voice networks, and they have become intrinsic in data networks as well. Since voice and data networks have evolved independently, so have their respective directories. This has created a major headache for most corporations today as they must enter and re-enter information into many independent directories that need to be synchronized. Succession CSE 1000 addresses this high-cost problem by integrating LDAP (Lightweight Directory Access Protocol) as the means to interface to other Enterprise directories. LDAP, which is based on an X.500 directory protocol, has become an industry standard and the means of doing directory inquiries on the Internet. The benefits of this integrated directory can be realized immediately. No longer is it necessary to maintain separate databases and implement processes to keep them synchronized. A single entry or change can now be made effective on all unified network elements including Human Resources and Security directories. This not only simplifies the management responsibilities of the system but also simplifies the system for the users. It enables applications to be written that streamline repetitive operations.

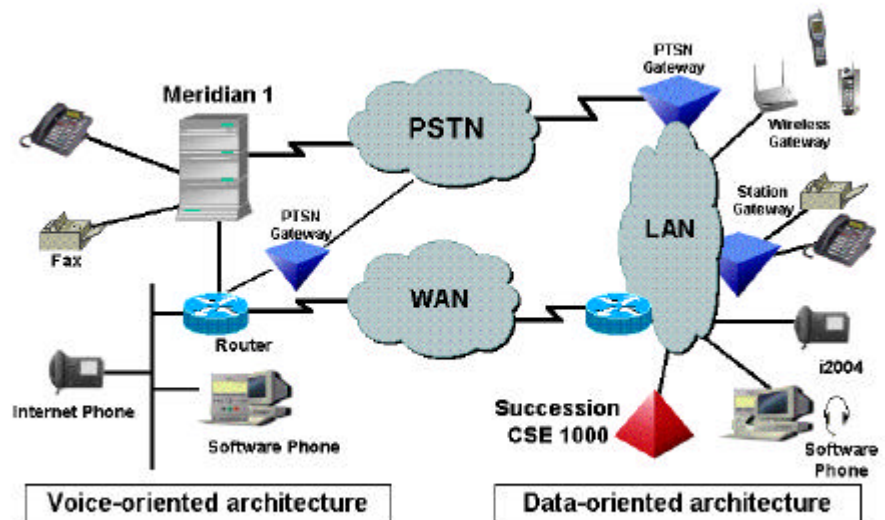
Applications Servers

Nortel Networks offers several server based applications including CallPilot* for Unified Messaging and Symposium* Call Center Server. Each of these applications runs on an industry-standard Windows server that has been optimized for these applications. With Succession CSE 1000 the link between Call Server and Applications Server is the IP Network. So these Applications Servers, like the Call Servers, Gateways and User Devices, can be distributed on the network.

Summary – Customer Choice

Customers purchasing a voice-quality system today want the assurance that they are making an investment that will last, and have the flexibility to evolve and integrate with the data network. Enterprises that are not ready to start implementing an IP-based solution yet, can rest assured that the investment they are making in today's Meridian 1* will continue to deliver investment protection moving forward into the Succession Communication Server for Enterprise 1000 products. With Succession CSE 1000, Nortel Networks offers choice for customers who want to implement an IP PBX immediately, or leverage their current Meridian 1 communication systems with incremental migration to IP. Either way the building block components of the network are common. With the availability of Meridian Internet Telephony Gateway, i2004 Internet Telephone, Telephony Manager, and IP-connected gateways containing trunk and line interfaces, Meridian 1 is an IP hybrid switch today. IP-enabled Meridian 1 systems provide a migration path to Succession.

This flexible set of choices allows you the customer to pace the implementation of Internet Telephony in-step with the available



budget while minimizing the impact to the end-users. No large-scale training programs are required, as the interface remains the same to the end-user. Training can be scheduled for new feature updates as required over time. Using the installed Meridian 1 is a natural choice for customers with current investment in the voice communications network. Over time, customers have the choice to rapidly or slowly transform their network to a fully IP unified network. This flexibility enables customers to implement the optimum network for their Enterprise based on their business requirements, current investment in voice and data infrastructure, where they would place their organization on the adoption curve for Internet telephony, and at what speed they wish to implement.



For more information, please contact your local Nortel Networks account representative or call 1-800-4NORTEL (1-800-466-7835) or 1-506-674-5470.

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